

What is claimed is:

sub-A1
1. An internet based access point management system accessible by at least one internet web browser configured to communicate one or more requests comprising modifying operation of one or more computer managed openings located at one or more facilities, the internet based access point management system comprising:

at least one computer processor;

a web server operative with the at least one computer processor and the web server being configured to receive and respond to one or more requests communicated from the at least one web browser;

a database server operative with the at least one computer processor;

an application server operative with the at least one computer processor and being configured to communicate with the web server and the database server for processing requests, the processing of requests comprising formulating one or more system commands in response to the requests; and

a communication link configured to connect the application server and the one or more computer managed openings for communication therebetween, the communication link comprising the one or more system commands which modify operation of the one or more computer managed openings.

2. The internet based access point management system of claim 1 wherein:

the one or more computer managed openings each comprise an access point each connected to a controller;

the communication link comprises:

a mail server operative with the at least one computer processor and being configured for communication of electronic messages in electronic mail format over the internet;

a local mail server or mail client operative with another computer processor and being configured to receive the electronic messages in electronic mail format over the internet from the mail server; and

a local gateway configured to communicate with the local mail server and the controllers; and

the application server is configured to incorporate system commands into electronic messages in electronic mail format and to communicate with the mail server.

3. The internet based access point management system of claim 2 wherein each controller comprises:

a power supply;

a transceiver for communication with the local gateway;

a processor energized by the power supply and connected in circuit with the transceiver;

non-volatile memory connected in circuit with the processor;

a clock connected in circuit with the processor;

an input port for receiving user input; and

an output port for connection to a locking device, the locking device being mechanically connected to the access point.

4. The internet based access point management system of claim 1 wherein the system commands modify operation of the one or more computer managed openings in order to perform at least one of the functions selected from the group consisting of assigning a user's access credentials, grouping a user's access privilege with a respective access point and scheduling time events.

5. The internet based access point management system of claim 1 wherein the processing of requests by the application server also comprises assembling a response for communication to the web server.

6. The internet based access point management system of claim 2 wherein the database server stores one or more of the following: individual local gateway electronic mail address, software components,

gateway configuration database, individual computer managed opening identification, CMO firmware, CMO configuration and gateway and controller onboard databases.

7. The internet based access point management system of claim 6 wherein the database comprises:

a user database comprising user group layers, user groups related to particular user group layers and users related to particular user groups;

an access type database comprising readers;

an access point database comprising access point groups with particular access points related thereto and to a computer managed opening type;

an operator database comprising operators being related to user group layers and particular user groups, the operators also being related to access point groups and access points;

a local gateway database comprises computer managed opening type; and

wherein the users are related to a particular access type and the user groups are related to a particular access point, the computer managed opening type is related to particular readers, configuration

database and time management of each access point and/or access point grouping.

8. The internet based access point management system of claim 2 wherein the local gateway comprises a gateway server component and an electronic mail agent component.

9. The internet based access point management system of claim 2 wherein the local gateway converts the electronic messages from the electronic mail format to LonTalk™ protocol.

10. The internet based access point management system of claim 2 wherein the local gateway converts the electronic messages from the electronic mail format to another format comprising a command string comprising a command identification, a length of one or more commands and at least one command.

11. The internet based access point management system of claim 2 wherein the local gateway further comprises an encryption/decryption device for encrypting/decrypting the electronic messages in electronic mail format and further comprising:

an encryption/decryption server operative with the at least one computer processor for encrypting/decrypting the electronic messages in electronic mail format.

12. The internet based access point management system of claim 2 wherein the electronic messages in electronic mail format comprise:

a subject comprising a message index; and

attached files comprising at least one command file and at least one database table file.

13. The internet based access point management system of claim 12 wherein the local gateway further comprises an encryption/decryption device for encrypting/decrypting at least one database table file and/or at least one database table file and further comprising:

an encryption/decryption server operative with the at least one computer processor for encrypting/decrypting at least one command file and/or at least one database table file.

14. The internet based access point management system of claim 13 wherein the command file comprises a consecutive byte string absent delimiters.

15. The internet based access point management system of claim 14 wherein the consecutive byte string comprises a transaction identification, a number of commands in the byte string and a command body.

16. The internet based access point management system of claim 15 wherein the command body comprises a length of the command body, a command identification, computer managed opening identification, computer managed opening sub-identification and at least one command parameter.

17. The internet based access point management system of claim 2 wherein the one or more computer managed openings are configured to generate reply messages which are converted into electronic mail format by the local gateway.

18. The internet based access point management system of claim 17 wherein the electronic mail format of the reply messages comprises:

- a subject which comprises at least one of a transaction identification or a message index;

- a contents which comprises a predefined success or failure indication; and

attached files comprising at least one database table file.

19. The internet based access point management system of claim 18 wherein the local gateway further comprises an encryption/decryption device for encrypting/decrypting at least one database table file and/or at least one database table file and further comprising:

an encryption/decryption server operative with the at least one computer processor for encrypting/decrypting at least one command file and/or at least one database table file.

20. The internet based access point management system of claim 1 wherein the at least one computer processor comprises three computer processors and wherein each of the web server, database server and application server each are operative with a separate one of the three computer processors.

21. An internet based access point management system at least a part of which resides on a computer readable medium and is accessible by at least one internet web browser configured to communicate one or more requests comprising modifying an operation of one or more computer managed openings located at one or more facilities, the internet based access point management system comprising:

a web server configured to receive and respond to one or more requests communicated from the at least one web browser;

a database server;

an application server configured to communicate with the web server and the database server for processing requests, the processing of requests comprising formulating one or more system commands in response to the requests; and

a communication link configured to connect the application server and the one or more computer managed openings for communication therebetween, the communication comprising the one or more system commands which modify operation of the one or more computer managed openings.

22. The internet based access point management system of claim 21 wherein:

the one or more computer managed openings each comprise an access point each connected to a controller;

the communication link comprises:

a mail server operative with the at least one computer processor and configured for communication of electronic messages in electronic mail format over the internet;

a local mail server or mail client operative with another computer processor and configured to receive the electronic messages in electronic mail format over the internet from the mail server; and

a local gateway configured to communicate with the local mail server and the controllers; and

the application server is configured to incorporate system commands into electronic messages in electronic mail format and to communicate with the mail server.

23. The internet based access point management system of claim 22 wherein each controller comprises:

a power supply,

a transceiver for communication with the local gateway;

a processor energized by the power supply and connected in circuit with the transceiver;

~~non-volatile memory connected in circuit with the processor;~~

a clock connected in circuit with the processor;

an input port for receiving user input; and

an output port for connection to a locking device, the locking device being mechanically connected to the access point.

28. The internet based access point management system of claim 27 wherein the command file comprises a consecutive byte string absent delimiters.

29. The internet based access point management system of claim 28 wherein the consecutive byte string comprises a transaction identification, a number of commands in the consecutive byte string and a command body.

30. The internet based access point management system of claim 29 wherein the command body comprises a length of the command body, a command identification, computer managed opening identification, computer managed opening sub-identification and at least one command parameter.

31. The internet based access point management system of claim 22 wherein the one or more computer managed openings are configured to generate reply messages which are converted into electronic mail format by the local gateway.

by at least one internet web browser communicating one or more requests for modifying operation of one or more computer managed openings located at one or more facilities, comprising:

a web server operative with the at least one computer processor and configured to receive and respond to one or more requests from the at least one web browser;

a database server; and

an application server being configured to communicate with the web server and the database server for receiving and processing commands, the processing of commands comprising formulating system commands for communication to the web browser by the web server.

37. The internet based access point management system of claim 36 wherein the one or more computer managed openings each comprise at least one access point and further comprising:

a file transfer protocol server operative with a computer processor and configured to communicate with the web browser for converting the system commands into a format compatible with that used by the access points and for downloading the system commands to a portable device for transfer to a particular controller.

the step of processing is performed by an application server and comprises retrieving data concerning one or more computer managed openings from a data base; and

the step of selecting the appropriate electronic format is also performed by the application server and comprises selecting file transfer protocol for the system commands where the computer managed opening is stand-alone based and selecting electronic mail message format for the system commands where the computer managed opening is network or modem based.

40. The method of claim 39, wherein:

the step of communicating the one or more system commands comprises:

communicating the system commands in file transfer protocol to the web server for communication to the web browser where the computer managed opening is stand-alone, whereupon an administrator may download and transfer the system commands to a controller; and

communicating the system commands to a mail server in electronic mail message format for communication thereof to a local mail server, the local mail server communicating the system commands to a

local gateway which translates the system commands into another format for communication to one or more controllers.

41. The method of claim 40 wherein the local gateway translates electronic mail message format into a command string comprising a command identification, a length of one or more commands and at least one command.

42. The method of claim 40 wherein the electronic messages in electronic format comprises:

a subject comprising a message index; and
attached files comprising at least one command file and at least one database table file.

43. The method of claim 42 further comprises the steps of encrypting and decrypting the command file and/or the data base table file.

44. The method of claim 43 wherein the command file comprises a consecutive byte string absent delimiters.

45. The method of claim 44 wherein the consecutive byte string comprises a transaction identification, a number of commands in the consecutive byte string and a command body.

5 46. The method of claim 45 wherein the command body comprises a length of the command body, a command identification, computer managed opening identification, computer managed opening sub-identification and at least one command parameter.

10 47. The method of claim 40 further comprising the step of generating
reply messages by the computer managed opening and the reply
messages being in electronic mail format.

48. The method of claim ~~47~~ wherein the electronic mail format of the
15 reply messages comprises:

a subject which comprises at least one of a transaction
identification or a message index;

... a contents which comprises a predefined success or failure indication; and

20 attached files comprising at least one database table file.

[illegible]